References

Super-sized cooling



Uponor involvement

- 610 metres of Weholite SN4 ID 2,400 mm, 450 metres of Weholite SN4 ID 2,200 mm

Super-sized cooling

About 1 km of Weholite pipes were installed in Philippines as cooling water intake and outfall pipelines for the Petron Bataan Refinery (PBR). The Project Service team at Uponor Infra offered a turnkey solutions for the project.
The Petron Bataan Refinery (PBR), based in the Philippines, chose Weholite, a high density polyethylene (PE-HD) pipe, for the completion of its cooling water intake and outfall pipelines. As part of the redevelopment, Uponor Infra supplied the world's first plastic super-size intake structure, made from its new Weholite profile panels, which are lighter, faster to install, and therefore much better value than traditional solutions.

Project Facts:

Location	Completion
Manila, Philippines	2013
Building Type	Product systems
Municipal	Tailor made constructions
Project Type	
New building	

The Petron Bataan Refinery (PBR) is the Philippines' largest integrated crude oil refinery and petrochemicals complex. Inaugurated in 1961, with a capacity of 25,000 barrels per day, it has steadily grown to its currently rated capacity of 180,000 barrels-per-day.

In 2011, Petron decided to develop the Refinery Expansion Project (RMP-2), in order to make the refinery more competitive in the Asia-Pacific region, by significantly increasing its production rate (by up to 200% for some products).

The Project Services team at Uponor Infra, composed of international experts in providing turnkey solutions for the marine environment, designed, installed and supervised the installation of a cooling water intake pipeline and discharge outfall, and all of the intake offshore structures for the project.

Easily welded, no corrosion

The Korean company, Daelim, was the EPC contractor, while CCT-Toyo was the consortium that carried out all of the required tasks for the civil and marine works involved in the cooling system.

It did not take long for the CCT-Toyo Consortium to understand all of the advantages that Weholite would provide for their PBR cooling system.

Weholite, the global leading brand in large-diameter pipe technology, is one of the few solutions on the market that can be produced with internal diameters of up to 3.5 metres. The PE-HD pipe can easily be welded together on site and does not corrode, which is a crucial factor when pipes are installed in salt water and marine applications. As part of the redevelopment, Uponor Infra supplied the world's first plastic super-size intake structure – made from its new Weholite profile panels – which are lighter, faster to install and therefore much better value than traditional solutions.

Less than one month after its first visit to the Philippines in August 2012, the consortium gave the final yes to having a cooling system made of Weholite.

Teamwork in three countries

Uponor Infra Project Services' wealth of experience in these types of projects and installations is the ideal complement for Weholite, particularly when working on a project on the other side of the globe.

610 metres of Weholite SN4 ID 2,400mm for the intake and 450 metres of SN4 ID 2,200mm for the outfall were produced in the Uponor Infra factory in Thailand, under the supervision of Project Services in Vaasa, Finland. The connection flanges and fittings also came from Thailand. Uponor Infra provided all of the hydraulic and mechanical calculations for the intake and outfall, and handled the supervision of the installation process.

In May 2013, Project Services mobilised a crew of welders from Vaasa to the Philippines to start work at the Orion Port in Manila Bay, the site provided by CCT-Toyo for the welding activities and the launch of the Weholite strings. Meanwhile, the Project Services office in Vaasa was working on the design and calculations for the manufacture and installation of the two pipelines. The team was completed by the addition of two welders from the Uponor Infra subsidiary in Thailand.

Weholite means major cost savings

Weholite was chosen for its design lifetime guarantee and non-corrosive material, all of which enable Petron to avoid costly maintenance.

Pablo Ramón, the project services site manager at Uponor Infra, commented as follows:

''Weholite was ideal for this complex marine project for a number of reasons, as it eliminated the need for heavy concrete collars to ballast the strings, which can often be extremely risky during submersion. Filling its hollow profile with an inexpensive and pumpable material, such as limestone, was much faster and easier.''

''The submarine installation of Weholite is faster than that of steel pipes, allowing the installation of up to 200 linear metres in just one day. Since Weholite doesn't require concrete collars, the contractors were able to use a smaller trench, which minimised the dredging operation. The reduced volume of excavations meant lots of savings, since work done under water costs much more than work done on dry land,'' he added.

Although this was not Uponor Infra's first marine project in Asia, it was a milestone in the Philippines. It was also a major success, being the first time that plastic had been used as the lead material for an application of this kind in the Philippines. Weholite now has plenty of admirers in this part of Asia.

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